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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/730,783	12/07/2000	Sang Jin Oh	2832-0118P	8908

2292 7590 07/23/2004

BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER
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OLSEN, ALLAN W

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 07/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

my

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/730,783	OH ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Allan Olsen	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 10 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**  
***Election/Restrictions***

Newly submitted claim 10 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: claim 10 is directed to a product, whereas claims 1-9 are directed to a method. Specifically claim 10 is directed to a plasma display panel that is made with a roll punch and claims 1-9 are directed to a method of making a roll punch that is used to form the plasma a display of claim 10. As such, the claims are not even directly related. For example, these claims are not be related as a process of making a product and the product made, because the claimed process makes a roll punch rather than the actual product of claim 10, i.e., a plasma display product.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 10 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,709,598 issued to Nishio et al. in view of U.S. Patent 5,021,120 issued to Buck et al. and further in view of US Patent 5,747,931 issued to Riddle et al. (hereinafter, Nishio, Buck and Riddle).**

Nishio teaches using a forming roll (roll punch) to pattern the abrasive tape. Nishio teaches how to pattern the forming roll. Nishio teaches applying a photoresist over the surface of the forming roll. Nishio teaches uniformly patterning the resist thereby forming an etching mask through which selected portions of the underlying forming roll surface are exposed. Nishio teaches etching the exposed surface of the forming roll (see column 7, lines 20-53). Additionally, Nishio teaches forming recesses with vertical sidewalls and removing the photoresist etching mask before using the patterned forming roll for its intended purpose. See: figure 3; column 5, lines 20-32; column 6, lines 24-30 and 45-53; and column 8, lines 1-10.

Nishio does not teach “partially removing the mask from said forming roll at regularly spaced positions while rotating said forming roll, thus forming an intermediate product having a plurality of mask-free parts formed as continuous circles around the forming roll” (claim 1). Nishio does not teach removing portions of the masking layer with a cutting bite (claim 3).

Riddle making a plasma display panel by using a forming roll wherein the forming roll pattern comprises continuous circles formed around the roll.

It would have been obvious, for reasons explained below, for one skilled in the art to use a cutting bite and a lathe to form a plurality of mask-free parts formed as continuous circles around the forming roll mask. Nishio teaches that surfaces, such as

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the forming roll of Riddle, can be patterned in a variety of ways, including physically or mechanically removing portions of the surface, as well as chemically etching the surface through a patterned mask. Nishio does not discuss these well known processes in detail. For example, Nishio does not provide specific detail regarding the manner in which the etching mask is patterned. However, it would be obvious to pattern the etching mask by using any one patterning method disclosed by Nishio, such as, engraving or machining on a lathe.

Nishio does not teach etching the exposed portions of the forming roll by rotating the masked forming roll in an ultrasonic etch bath (claim 8).

Buck teaches etching in an ultrasonic etch bath (see abst; col. 3, lines 4-7; fig 1).

It would have been obvious for one skilled in the art to use ultrasound while etching the exposed portions of Nishio's forming roll because Buck teaches the application of ultrasound prevents the formation of etchant concentration gradients and thereby provides a highly uniform etching process (col. 1, ln 17- col. 2, ln 3).

Nishio does not describe removing the workpiece from the etchant prior to the step of removing the photoresist mask.

It would have been obvious to one skilled in the art to remove the workpiece from the etchant prior to the step of removing the etching mask because it is well known that the etchant that will remove the photoresist mask is very different from the etchant that is used to etch the exposed portions of the metallic workpiece. Therefore, the workpiece must be provided with a different etching environment in order to remove the etching mask. Alternatively, in the event that the selectivity between the etch mask and

the underlying forming roll is not quite so high it would be obvious to remove the workpiece from the etchant before the mask is removed in order to preserve the integrity of the pattern that has been transferred to the forming roll.

Buck teaches etching the exposed portions of a workpiece by agitating a workpiece that is immersed in an etchant bath to which ultrasonic energy is being provided by multiple ultrasonic sources that are disposed around the workpiece (abstract; col. 3, lines 4-7; figure 1).

**Claims 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishio, Buck and Riddle as applied to claim 1 above and further in view of U.S. Patent 5,858,106 issued to Ohmi et al. (hereinafter, Ohmi).**

The above noted teachings of Nishio, Buck and Riddle are herein relied upon. Additionally, it is noted that Riddle teaches forming patterns with vertical (orthogonal) sidewalls (column 5, lines 60-62). Also, Buck teaches etching a workpiece in ultrasonic etch bath by providing multiple ultrasonic sources disposed around the workpiece (abstract; col. 3, lines 4-7; figure 1).

The combination of Nishio, Buck and Riddle does not teach to rotate a workpiece while it is being etched in an ultrasonic etch bath.

Ohmi teaches moving a workpiece both vertically and laterally while it is being etched in an ultrasonic etch bath (column 3, lines 26-27; column 6, lines 21-40).

It would have been obvious to one skilled in the art to rotate a workpiece during an ultrasound enhanced etching process because rotating the cylindrical forming roll of Riddle is a simple means of achieving both the agitation called for by Buck and the horizontal and vertical displacement of the workpiece that is called for by Buck.

**Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishio, Buck and Riddle, as applied to claim 1 above, and further in view of U.S. Patent 5,182,188 issued to Cole, Jr. et al. (hereinafter, Cole).**

The combination of Nishio, Buck and Riddle does not teach the use of a laser beam for the step of partially removing the etching mask.

Cole teaches using a laser to partially remove an etch mask (col. 3, line 58).

It would have been obvious for one skilled in the art to use a laser beam to partially remove the etching mask of Nishio because Cole teaches that patterns with very high resolutions can be obtained (column 6, line 48).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new grounds of rejection.

Applicant's arguments filed March 12, 2003 have been fully considered but they are not persuasive. Applicant's arguments are focused upon the newly added limitation that requires the provision of regularly spaced mask free portions that each encircle the forming roll. Applicant argues "[t]he plate concavities 5 in Nishio et al. are formed in a convex shape on the roll formplate 1 and are therefore very different in structure from the claimed "mask-free parts". The examiner notes that Nishio does not depict or describe with reference numbers a feature that directly corresponds to the mask-free portions of applicant's claimed intermediate structure. Nevertheless, Nishio teaches that the pattern of "plate concavities 5" may be created by forming a patterned mask over the surface and etching the exposed portions of the roll to form the concavities (5).

***Conclusion***

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M-F 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Mills can be reached on 571-272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Allan Olsen', is positioned to the left of the printed name.

Allan Olsen  
Primary Examiner  
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